

ARCHIVES OF Biochemistry and Biophysics

Volume 91 • 1960

Executive Editors

Melvin Cohn
B. L. Horecker
W. D. McElroy

H. S. Mason
F. F. Nord

Howard K. Schachman
Earl R. Stadtman
H. Theorell

Editors

Aaron Bendich
Karl Folkers
David E. Green
François Gros
D. J. Hanahan
Osamu Hayaishi
C. H. W. Hirs
Harvey Itano
Herman M. Kalckar

Ephraim Katchalski
Irving M. Klotz
Henry Lardy
Luis F. Leloir
C. H. Li
F. Lynen
A. Neuberger
Rodney R. Porter
Jesse C. Rabinowitz

Thressa C. Stadtman
F. M. Strong
P. K. Stumpf
Andrew G. Szent-Györgyi
Kenneth V. Thimann
W. W. Umbreit
Birgit Vennesland
Gregorio Weber
Sidney Weinhouse



ACADEMIC PRESS
New York and London

Copyright ©, 1960, by Academic Press Inc.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Made in the United States of America

Contents of Volume 91

NUMBER 1, NOVEMBER 1960

FREDERIC L. HOCH AND BERT L. VALLEE. Sulfhydryl Groups of Some Mono- and Dimercaptans and Yeast Alcohol Dehydrogenase.....	1
K. GUGGENHEIM, S. HALEVY AND NAOMI FRIEDMANN. Levels of Lysine and Methionine in Portal Blood of Rats following Protein Feeding.....	6
F. J. JOUBERT. The Purification of the Plant β -Glucosidase, Elaterase.....	11
HERMAN COHEN AND WILLIAM KLEINBERG. Purification of Relaxin from Sow Ovaries.....	17
GAIL LORENZ MILLER, JOHN DEAN AND ROBERT BLUM. A Study of Methods for Preparing Oligosaccharides from Cellulose.....	21
J. ETTORI AND S. M. SCOGGAN. Metal Ions in Biological Systems. II. The Use of pM Indicators in the Presence of Large Molecules. A Determination of the Association Constant of Serum Albumin.....	27
STEVEN EDWARD KORNGUTH AND MARK A. STAHHAMANN. Studies on the Effect of Some Polyelectrolytes upon the Activity of Trypsin.....	32
MARGARET L. KORNGUTH AND H. J. SALLACH. β -Hydroxyaspartic Acid: Synthesis and Separation of Its Diastereoisomers.....	39
F. C. G. HOSKIN. Chemical Stimulation and Modification of Glucose Metabolism by Brain.....	43
INES MANDL AND BETTY B. COHEN. Bacterial Elastase. I. Isolation, Purification and Properties.....	47
SAM KATZ. The Location and Tentative Identification of Steroids on Paper Chromatograms by Means of a System of Color Tests.....	54
JULIUS A. GOLDBARG, ORRIE M. FRIEDMAN, ESTEBAN P. PINEDA, EDGAR E. SMITH, RAMESH CHATTERJI, EDWARD H. STEIN AND ALEXANDER M. RUTENBURG. The Colorimetric Determination of γ -Glutamyl Transpeptidase with a Synthetic Substrate.....	61
D. ABELSON, C. DEPATIE AND V. CRADDOCK. Interactions of Testosterone with Amino Acids.....	71
MALCOLM W. GORDON. The Correlation between <i>in Vivo</i> Mitochondrial Changes and Tryptophan Pyrrolase Activity.....	75
S. GARATTINI, A. GIACHETTI AND L. PIERI. Oxidation of Ceruloplasmin Substrates by Serum of Different Animal Species.....	83
J. M. BOWNESS. Chromatography of Acid Mucopolysaccharides on Columns Containing Celite and Calcium Phosphate.....	86
BENGT E. GUSTAFSSON, ARNE NORMAN AND JAN SJÖVALL. Influence of <i>E. coli</i> Infection on Turnover and Metabolism of Cholic Acid in Germ-Free Rats.....	93
K. MAEKAWA AND IRVIN E. LIENER. The Reaction of <i>S</i> -Methylglucosylisothiurea with Histidine.....	101
K. MAEKAWA AND IRVIN E. LIENER. Properties of the Glucosylamidyl Derivative of Trypsin.....	108
H. ZALKIN, A. L. TAPPEL AND J. PATRICK JORDAN. Studies of the Mechanism of Vitamin E Action. V. Selenite and Tocopherol Inhibition of Lipid Peroxidation in the Chick.....	117
B. JIRGENSONS. Optical Rotatory Dispersion of Some Pituitary Hormones.....	123
S. L. BONTING, ALTA D. TSOODLE, HENDRINA DE BRUIN AND B. R. MAYRON. Quantitative Histochemistry of the Nephron. VII. Various Phosphatases in the Healthy Human Kidney.....	130

EUGENE H. BERNSTEIN AND W. W. WAINIO. The Partial Purification of the 553 m μ Cytochrome Component.....	138
R. F. DAWSON, D. R. CHRISTMAN, M.L. SOLT AND A. P. WOLF. The Biosynthesis of Nicotine from Nicotinic Acid: Chemical and Radiochemical Yields.....	144
Letters to the Editors	
ROBERT G. CROUNSE AND SIMON ROTHBERG. Enzymes of the Krebs-Henseleit Cycle in Human Epidermis.....	151
A. MRŠKOŠ AND J. TOVÁREK. Note on a New Color Reaction for Tryptophan and on Determination of Serum Cholesterol.....	152
LEONARD R. AXELROD. <i>In Vitro</i> Transmethylation of 2-Hydroxyestradiol-17 β to 2-Methoxyestradiol-17 β -2-Methyl-C ¹⁴	152
Book Reviews.....	154
List of Forthcoming Papers.....	158
Erratum.....	158

NUMBER 2, DECEMBER 1960

L. R. FINA, H. S. SINCHER AND D. F. DeCOU. Evidence for Production of Methane from Formic Acid by Direct Reduction.....	159
L. R. FINA AND A. M. FISKIN. The Anaerobic Decomposition of Benzoic Acid During Methane Fermentation. II. Fate of Carbons One and Seven.....	163
FREDERIC L. HOCH, ROBERT G. MARTIN, WARREN E. C. WACKER AND BERT L. VALLEE. Adventitious Inhibition of Yeast Alcohol Dehydrogenase.....	166
WILLIAM J. BOWEN AND K. LAKI. Relaxation of ATP-Induced Tension of Glycerol-Treated Muscle Fiber by Polyphosphate.....	173
JEROME F. FREDRICK AND ARTHUR C. GENTILE. The Stability Constant of the Manganese Chelate of 3-Amino-1,2,4-Triazole.....	178
NORMAN WEINER. Substrate Specificity of Brain Amine Oxidase of Several Mammals.....	182
J. D. BU'LOCK. Intermediates in Melanin Formation.....	189
JACK R. LEONARDS AND BERNARD R. LANDAU. A Study on the Equivalence of Metabolic Patterns in Rat Adipose Tissue: Insulin versus Glucose Concentration....	194
A. CAPUTO AND E. APPELLA. Molecular Characteristics of a Crystalline Human Macroglobulin.....	201
TAKUYA HAYASHIDA AND OSCAR W. PORTMAN. Mitochondrial Dehydrogenase Activity of Rat Liver Deficient in Essential Fatty Acids.....	206
A. S. L. HU, R. EPSTEIN, H. O. HALVORSON AND R. M. BOCK. Yeast β -Glucosidase: Comparison of the Physical-Chemical Properties of Purified Constitutive and Inducible Enzyme.....	210
JAMES E. GARVIN. A New Method for the Determination of Taurine in Tissues.....	219
E. R. REDFEARN. The Metabolism of Vitamin A Acid and Its C ₂₅ Homolog.....	226
ERNEST C. ADAMS, JR., RAYMOND L. MAST AND ALFRED H. FREE. Specificity of Glucose Oxidase.....	230
J. H. WOYCHIK, R. J. DIMLER AND F. R. SENTI. Chromatographic Fractionation of Wheat Gluten on Carboxymethylcellulose Columns.....	235
J. R. SOKATCH. Ribose Biosynthesis by <i>Streptococcus faecalis</i>	240
THEODORE ELLISON, W. A. B. THOMPSON AND F. M. STRONG. Volatile Fatty Acids from Axenic <i>Ascaris lumbricoides</i>	247
GEORGE F. GRANNIS. The Hydrolysis of Insulin and Human Serum Albumin in Dilute Hydrochloric Acid.....	255
ERICH HEFTMANN, BARBARA E. WRIGHT AND GERALD U. LIDDEL. The Isolation of Δ^{22} -Stigmasten-3 β -ol from <i>Dictyostelium discoideum</i>	266

NORMAN I. KRINSKY AND TIMOTHY H. GOLDSMITH. The Carotenoids of the Flagellated Alga, <i>Euglena gracilis</i>	271
S. RATNER, HALINA MORELL AND EVELYN CARVALHO. Enzymes of Arginine Metabolism in Brain.....	280
R. J. O'CONNOR AND H. O. HALVORSON. Intermediate Metabolism of Aerobic Spores. V. The Purification and Properties of L-Alanine Dehydrogenase.....	290
D. L. COLEMAN. Phenylalanine Hydroxylase Activity in Dilute and Nondilute Strains of Mice.....	300
J. E. GANDER. Biogenesis of Galactocarolose by <i>Penicillium charlesii</i> . I. Incorporation of C ¹⁴ from Glucose-C ¹⁴ and DL-Tartrate-1,4-C ¹⁴ into Polygalactose.....	307
ÅKE ÅKESON, G. V. EHRENSTEIN, G. HEVESY AND HUGO THEORELL. Life Span of Myoglobin.....	310
ÅKE ÅKESON AND HUGO THEORELL. On the Microheterogeneity of Horse Myoglobin.....	319
LETTERS TO THE EDITORS	
DANIEL M. BACHMAN, BELLE DRAGOON AND SOSAMMA JOHN. Reduction of Salicylate to Saligenin by Neurospora.....	326
DONALD J. HANAHAN AND HANS BROCKERHOFF. A Synthetic Route to "Mixed Acid" L- α -Lecithins and D- α , β -Diglycerides.....	326
G. MORUZZI, M. MARTINELLI AND C. M. CALDARERA. Cholesterol Lowering Activity of Lipide in Wheat Gluten.....	328
Book Reviews.....	330
List of Forthcoming Papers.....	335
Books Received for Review.....	336
Author Index.....	336
Subject Index.....	339
Index of Book Reviews.....	340

